porous sintered member ~~being obtained by sintering~~ said carbon or said allotrope thereof to form a network.

7. (Amended) The heat sink material according to claim 6, wherein a porosity of said porous sintered member is 10 to 50 % by volume, and an average pore diameter is 0.1 to 200 μm.

8. (Amended) The heat sink material according to claim 6, wherein as for volume ratios between said carbon or said allotrope thereof and said metal, said volume ratio of said carbon or said allotrope thereof is within a range from 50 to 80 % by volume, and said volume ratio of said metal ~~is within~~ a range from 50 to 20 % by volume.

A8 cont

9. (Amended) The heat sink material according to claim 6, wherein an additive is added to said carbon or said allotrope thereof for decreasing a closed porosity when said carbon or said allotrope thereof is sintered.

A9

11. (Amended) The ~~heat sink material~~ according to claim 1, wherein said heat sink material is constructed by infiltrating a preformed product with said metal, said preformed product being prepared by mixing water or a binder with powder of said carbon or said allotrope thereof, and forming an obtained mixture under a predetermined pressure.

12. (Amended) The heat sink material according to claim 11,

wherein an average ~~powder~~ particle size of said powder of said carbon or said allotrope thereof is 1 to 2000 μm, and

wherein a length ratio is not more than 1:5 between a direction in which said powder has a minimum length and a direction in which said powder has a maximum length.

13. (Amended) The heat sink material according to claim 11, wherein as for volume ratios between said carbon or said allotrope thereof and said metal, said volume ratio of said carbon or said allotrope thereof is within a range from 20 to 80 % by volume, and said volume ratio of said metal is within a range from 80 to 20 % by volume.

14. (Amended) The heat sink material according to claim 1, wherein said heat sink material is constructed by mixing powder of said carbon or said allotrope thereof with said metal dissolved into a liquid state or a solid-liquid co-existing state to obtain a mixture, and casting the obtained mixture.

A9 cont

15. (Amended) The heat sink material according to claim 6, wherein a closed porosity is not more than 12 % by volume.

16. (Amended) The heat sink material according to claim 6, wherein an element for improving wettability at an interface is added to said metal.

A10

18. (Amended) The heat sink material according to claim 6, wherein an element for improving reactivity with said carbon or said allotrope thereof is added to said metal.

AI1

20. (Amended) The heat sink material according to claim 6, wherein an element, which has a temperature range of solid phase/liquid phase of not less than 30°C, is added to said metal in order to improve molten metal flow performance.

AI2

22. (Amended) The heat sink material according to claim 6, wherein an element for lowering a melting point is added to said metal.

24. (Amended) The heat sink material according to claim 6, wherein an element for improving said coefficient of thermal conductivity is added to said metal.

AI3

25. (Amended) The heat sink material according to claim 24, wherein an element for improving said coefficient of thermal conductivity is added to said metal, an alloy of the element and said metal is obtained by segregation or the like after a heat treatment, processing, and reaction with carbon, and the alloy has a coefficient of thermal conductivity of not less than 10 W/mK.

26. (Amended) The heat sink material according to claim 1, wherein said heat sink material is constructed such that powder of said carbon or said allotrope thereof is mixed with powder of said metal to obtain a mixture and the obtained mixture is formed under a predetermined pressure.

27. (Amended) The heat sink material according to claim 26, wherein an average powder particle size of said powder of said carbon or said allotrope thereof and said powder of said metal is 1 to 500 μm.

28. (Amended) The heat sink material according to claim 1, wherein said heat sink material is constructed such that a pulverized cut material of said carbon or said allotrope thereof is mixed with powder of said metal to obtain a mixture and the mixture is formed at a predetermined temperature under a predetermined pressure.

29. (Amended) The heat sink material according to claim 26, wherein as for volume ratios between said carbon or said allotrope thereof and said metal, said volume ratio of said carbon or said allotrope thereof is within a range from 20 to 60 % by volume, and said volume ratio of said metal is within a range from 80 to 40 % by volume.

A13 cont

30. (Amended) The heat sink material according to claim 26, wherein said coefficient of thermal conductivity is not less than 200 W/mK, and a coefficient of thermal expansion is 8×10^{-6} to 14×10^{-6}/°C.

31. (Amended) The heat sink material according to claim 26, wherein an additive making it possible to perform re-sintering after formation, is added to said carbon or said allotrope thereof.

A14

33. (Amended) The heat sink material according to claim 26, wherein a low melting point metal for improving wettability at an interface is added to said metal.

A15

35. (Amended) The heat sink material according to claim 26, wherein an element for improving reactivity with said carbon or said allotrope thereof is added to said metal.

37. (Amended) The heat sink material according to claim 26, wherein an element having a temperature range of solid phase-liquid phase of not less than 30 °C is added to said metal in order to improve molten metal flow performance.

A16

39. (Amended) The heat sink material according to claim 26, wherein an element for lowering a melting point is added to said metal.

A17

41. (Amended) The heat sink material according to claim 1, wherein a carbide layer is formed on a surface of said carbon or said allotrope thereof.

A18

44. (Amended) The heat sink material according to claim 1, wherein said metal is at least one selected from Cu, Al, and Ag.

A19

45. (Amended) The heat sink material according to claim 1, wherein a ratio of coefficient of thermal conductivity is not more than 1:5 between a direction in which said coefficient of thermal conductivity is minimum and a direction in which said coefficient of thermal conductivity is maximum.

46. (Amended) A method of producing a heat sink material, comprising the steps of:

sintering carbon or allotrope thereof to form a network for obtaining a porous sintered member;

infiltrating said porous sintered member with metal; and

cooling said porous sintered member infiltrated with at least said metal.

47. (Amended) The method of producing said heat sink material according to claim 46, wherein in said sintering step, said carbon or said allotrope thereof is placed in a vessel, and an interior of said vessel is heated to produce said porous sintered member of said carbon or said allotrope thereof.

48. (Amended) The method of producing said heat sink material according to claim 46, wherein in said infiltrating step, said porous sintered member is immersed in molten metal of said metal introduced into a vessel, and said porous sintered member is infiltrated with said molten metal by introducing infiltrating gas into said vessel to pressurize an interior of said vessel.

A19

49. (Amended) The method of producing said heat sink material according to claim 48, wherein force of said pressurization is four to five times as strong as a compressive strength of said porous sintered member of said carbon or said allotrope thereof, or less than four to five times the compressive strength of said porous sintered member.

A20

51. (Amended) The method of producing said heat sink material according to claim 46, wherein in said cooling step, said infiltrating gas in a vessel is vented, and cooling gas is quickly introduced to cool an interior of said vessel.

52. (Amended) The method of producing said heat sink material according to claim 46,

wherein said sintering step includes a step of setting said carbon or said allotrope thereof in a case, and a step of preheating an interior of said case to prepare said porous sintered member of said carbon or said allotrope thereof, and

wherein said infiltrating step includes a step of setting said case in a mold of a press machine, a step of pouring molten metal of said metal into said case, and a step of forcibly pressing said molten metal downwardly with a punch of said press machine to infiltrate said porous sintered member in said case with said molten metal.

A20 cont

53. (Amended) The method of producing said heat sink material according to claim 52, wherein a pressure of said forcible pressing by said punch is four to five times as strong as a compressive strength of said porous sintered member of said carbon or said allotrope thereof or less than four to five times the compressive strength of said porous sintered member.

54. (Amended) The method of producing said heat sink material according to claim 53, wherein said pressure of said forcible pressing by said punch is 1.01 to 202 MPa (10 to 2000 atmospheres).

55. (Amended) The method of producing said heat sink material according to claim 53, wherein said mold is formed with a gas vent hole for venting any remaining gas in said porous sintered member or formed with a gap for venting gas.

56. (Amended) The method of producing said heat sink material according to claim 46, wherein in said cooling step, said heat sink material, in which said porous sintered member is infiltrated with said metal, is cooled by cooling gas blown thereagainst or by using a cooling zone or a cooling mold where cooling water is supplied.

57. (Amended) A method of producing a heat sink material, comprising the steps of:

mixing water or a binder with powder of carbon or allotrope thereof to obtain a mixture;

A20 Cont

forming the obtained mixture into a preformed product under a predetermined pressure; and

infiltrating said preformed product with metal.

58. (Amended) A method of producing a heat sink material, comprising the steps of:

mixing powder of carbon or allotrope thereof with metal dissolved into a liquid state or a solid-liquid co-existing state to obtain a mixture; and

casting the obtained mixture.

59. (Amended) A method of producing a heat sink material, comprising the steps of:

mixing powder of carbon or allotrope thereof with powder of metal to obtain a mixture; and

pressurizing the obtained mixture placed in a mold of a hot press machine at a predetermined temperature under a predetermined pressure to form into said heat sink material.

60. (Amended) A method of producing a heat sink material, comprising the steps of:

mixing powder of carbon or allotrope thereof with powder of metal to obtain a mixture;

A20 cont

preforming the obtained mixture to prepare a preformed product; and

pressurizing said preformed product ~~placed in a mold of a~~ hot press machine at a predetermined temperature under a predetermined pressure to form into said heat sink material.

61. (Amended) A method of producing a heat sink material, comprising the steps of:

mixing a pulverized cut material of carbon or allotrope thereof with powder of metal, and preforming to prepare a mixture; and

pressurizing said mixture placed in a mold of a hot press machine at a predetermined temperature under a predetermined pressure to form into said heat sink material.

62. (Amended) A method of producing a heat sink material, comprising the steps of:

mixing a pulverized cut material of carbon or allotrope thereof with powder of metal to obtain a mixture;

preforming the obtained mixture to prepare a preformed product, and

pressurizing said preformed product placed in a mold of a hot press machine at a predetermined temperature under a predetermined pressure to form into said heat sink material.

A20 cont'd

63. (Amended) The method of producing said heat sink material according to claim 59,

wherein said predetermined temperature is relatively -10 °C to -50 °C with respect to a melting point of ~~said metal~~, and

wherein said predetermined pressure is 10.13 to 101.32 MPa (100 to 1000 atmospheres).

64. (Amended) The method of producing said heat sink material according to claim 59, wherein said heat sink material is heated to a temperature of not less than a melting point of said metal after said pressurizing step.

65. (Amended) The method of producing said heat sink material according to claim 46, ~~wherein said metal~~ is at least one selected from Cu, Al, and Ag.